In the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1   1. (Original) A data transfer controller comprising:
2   a request queue controller capable of receiving, prioritizing
3   and dispatching data transfer requests each specifying a data
4   source, a data destination and a data quantity to be transferred;
5   a data transfer hub connected to the request queue controller
6   for receiving dispatched data transfer requests;
7   a plurality of ports having an interior interface connected to
8   the data transfer hub which is so configured as to be the same for
9   each port and an exterior interface configured for an external
10   memory/device which, in operation, is connected to said port, the
11   interior interface and the exterior interface being connected for
12   data transfer therebetween;
13   wherein the data transfer hub being capable of controlling
14   data transfers from a source port corresponding to the data source
15   to a destination port corresponding to the data destination in
16   quantities corresponding to the data quantities to be transferred
17   under a currently executing data transfer request; and
18   wherein at least one of said plurality of ports consists of an
19   active data port connected to said request queue controller capable
20   of specifying a data source, a data destination and a data quantity
21   to be transferred.

1   2.   (Original) The data transfer controller of claim 1,
2   wherein:
3   said active data port capable of generating a data transfer
4   request specifying said active data port as said data destination;
5   wherein said data transfer hub generates a read command to
6   said data source and transfers read data to said active data port.

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1   3.   (Original) The data transfer controller of claim 2,
2   wherein:
3   said data transfer hub generates a pre-write command to said
4   active data port prior to transferring said read data to said
5   active port; and
6   said active data port generates an acknowledge signal to said
7   data transfer hub following receipt of said pre-write command when
8   said active data port is ready to receive data.

1   4.   (Original) The data transfer controller of claim 1,
2   wherein:
3   said active data port capable of generating a data transfer
4   request specifying said active data port as said data source;
5   wherein said data transfer hub generates a read command to
6   said active data port and transfers read data to said data
7   destination.

1   5.   (Original) The data transfer controller of claim 4,
2   wherein:
3   said interior interface of said active data port supplies a
4   read data command to said exterior interface of said active data
5   port in response to read data command of said data transfer hub.

1   6.   (Original) The data transfer controller of claim 4,
2   wherein:
3   said interior interface of said active data port includes a
4   first-in-first-out buffer;
5   said exterior interface writing data into said first-in-first-
6   out buffer upon generation of said data transfer request by said
7   active data port; and

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8   said interior interface supplying data read from said first-
9   in-first-out buffer upon receipt of said read command from said
10   data transfer hub.

1   7.   (Original) The data transfer controller of claim 6,
2   wherein:
3   said interior interface of said active port generates a stall
4   signal to said exterior interface of said active port when said
5   first-in-first-out buffer is full; and
6   said exterior interface refrains from writing data into said
7   first-in-first-out buffer upon receipt of said stall signal.

1   8.   (Original) A method of data transfer comprising the steps
2   of:
3   receiving, prioritizing and dispatching data transfer requests
4   each specifying a data source, a data destination and a data
5   quantity to be transferred;
6   transferring data from a source port selected from a plurality
7   of ports corresponding to the data source to a destination port
8   selected from said plurality of ports corresponding to the data
9   destination in quantities corresponding to the data quantities to
10   be transferred under a currently executing data transfer request;
11   wherein at least one of said plurality of ports is an active
12   data port capable of specifying a data source, a data destination
13   and a data quantity to be transferred.

1   9.   (Original) The method of data transfer of claim 8,
2   wherein:
3   said active data port is capable of generating a data transfer
4   request specifying said active data port as said data destination.

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1   10.   (Original) The method data transfer of claim 9, further
2   comprising the steps of:
3   supplying a pre-write command to said active data port prior
4   to transferring said read data to said active port; and
5   supplying an acknowledge signal from said active data port
6   following receipt of said pre-write command when said active data
7   port is ready to receive data.

1   11.   (Original) The method of data transfer of claim 8,
2   wherein:
3   said active data port is capable of generating a data transfer
4   request specifying said active data port as said data source.

1   12.   (Original) The method of data transfer of claim 11,
2   further comprising the steps of:
3   writing data into a first-in-first-out buffer upon generation
4   of said data transfer request by said active data port; and
5   supplying data read from said first-in-first-out buffer upon
6   receipt of a read command by from said active data port.

1   13.   (Original) The method of data transfer of claim 12,
2   further comprising the steps of:
3   generating a stall signal when said first-in-first-out buffer
4   is full; and
5   refraining from writing data into said first-in-first-out
6   buffer upon generation of said stall signal.

1   14.   (New) The data transfer controller of claim 1, further
2   comprising:
3   a plurality of transfer request nodes disposed in a chain
4   having an upstream most node and a downstream most node, said
5   downstream node connected to said request queue controller;

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6   a plurality of transfer requestor nodes each capable of
7 generating service requests and each connected to a corresponding
8 one of said plurality of transfer request nodes; and
9   a special transfer request node connected to said upstream
10 most node of said plurality of transfer request nodes and said
11 active data port, said special transfer request node connecting
12 said active data port to said request queue controller via said
13 plurality of transfer request nodes.

1   15. (New) The method of data transfer of claim 8, wherein:
2   said step of receiving, prioritizing and dispatching data
3 transfer requests is performed by a request queue controller;
4   further comprising the steps of:
5   transferring data transfer requests from each of a plurality
6 of transfer requestor nodes to said request queue controller via a
7 chain of a plurality of transfer request nodes having a an upstream
8 most node and a downstream most node, said downstream node
9 connected to said request queue controller; and
10   transferring data transfer requests from said active data port
11 to said request queue controller via a special transfer request
12 node connected to said upstream most transfer request node.

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